1953
(48)

INTEROCULAR TRANSFER OF A VISUAL FORM DISCRIMINATION HABIT IN CATS AFTER SECTION OF THE OPTIC CHIASMA AND CORPUS CALLOSUM

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Through a transbuccal approach, the optic chiasma was sectioned in the midsagittal plane thereby restricting the central projection of retinal patterns to the homolateral sides of the brain. The cats were then taught a simple form discrimination (circle vs. square) with a mask covering the left eye. After overtraining, the mask was shifted to the right eye for critical trials. "Interocular transfer" of the habit was found to be effected with no significant deterioration in level of performance (two cases). In one of these cases the transfer to the untrained eye survived subsequent section of the corpus callosum in the midsagittal plane; in the other it did not. Transfer failed in another case in which the corpus callosum was sectioned just before the critical tests after the completion of training. "Interocular transfer" was demonstrated in two cases in which the corpus callosum as well as the chiasma had been sectioned prior to training.

However, three later cases with the corpus callosum cut failed to show transfer. This discrepancy in the data may be due to incomplete section of the chiasma in the earlier cats. Anatomical check of the lesions has been deferred until further tests on the cats have been completed. The effects of eliminating other commissural systems and brain centers in various combinations are currently being investigated with particular regard to the location and nature of the mnemonic traces.

Reprinted from Anatomical Record, 1953, vol. 115, pp. 351-352.